

REMARKS

Claims 1-68 are pending in the present application. The Examiner has objected to claims 62-68 and has rejected claims 1-61.

I. ALLOWABLE SUBJECT MATTER IN CLAIMS 62-68

Applicants would like to gratefully acknowledge the indication by the Examiner that claims 62-68 include patentable subject matter. The Examiner states that claims 62-68 are merely objected to for depending from a rejected base claim. However, in view of the arguments made below, Applicants believe that claims 62-68 are in condition for allowance. It is respectfully requested that the objection be withdrawn with respect to claims 62-68.

II. REJECTION UNDER 35 U.S.C. § 103(a) WITH RESPECT TO CLAIMS 1-7, 15-20, 28-34, 47-49, 54-59 AND 61

Claims 1-7, 15-20, 28-34, 47-49, 54-59 and 61 stand rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 6,343,207 B1 ("Hessel") in view of U.S. Patent No. 6,020,783 ("Coppola"). Applicants respectfully traverse the rejection.

A. Claims 1-7

Neither Hessel nor Coppola, individually or combined, teaches or suggests each and every element as set forth in claim 1. For example, claim 1 recites "first and second digitally tunable filters; and control logic to digitally tune the first and second filters as a function of a first parameter of a first signal output from the first filter and a second parameter of a second signal output from the second filter". The Examiner alleges that the first and second digitally tunable filters are compensation finite impulse response (CFIR) filter 172I and CFIR filter 172Q as illustrated in FIG. 8 of Hessel. Furthermore, the Examiner alleges that the control logic is a programmable FIR (PFIR) filter 174I or a PFIR filter 174Q as illustrated in FIG. 8 of Hessel, or a PFIR filter 180I or a PFIR filter 180Q as illustrated in FIG. 9 of Hessel. However, neither PFIR filter 174, 180 is control logic that digitally tunes the CFIR filters 172 (as alleged by the Examiner). Applicants respectfully draw the attention of the Examiner to col. 21, lines 53-59 of Hessel which explain the function of the CFIR filter 172.

The wide band decimation and compensation filter 289 of FIG. 29, including the CIC filter 170, a scaling multiplier 171 and the CFIR 172, in the configured receiver circuit 150, has multirate filters that are used to reduce the bandwidth of

an input signal. After the bandwidth is reduced the sample rate can also be reduced. The combination of filtering and sample rate reduction is called decimation.

Col. 21, lines 53-59 of Hessel. Thus, the CFIR filter 172 merely compensates for the CIC filter 170 during the decimation process. Applicants also respectfully draw the attention of the Examiner to col. 23, lines 1-8 of Hessel which explain the function of the PFIR filter 174, 180.

The PFIR filter 174 in the receive mode and PFIR filter 180 in the transmit mode of FIGS. 38 and 39, respectively, dictate the final output response of the system lowpass filtering. In the receive mode, the PFIR filter 174 receives bit samples from the CFIR filter 172 and outputs bit rounded results to the gain circuit 176. In the transmit mode, the PFIR filter receives inputs from the bus 139 and outputs bit samples to the gain circuit 182.

Col. 23, lines 1-8 of Hessel. Thus, the PFIR filter 174, 180 merely provides filtering in the system low pass filtering and does not provide control logic to tune the CFIR filters 172. In fact, in FIG. 8 of Hessel, the PFIR filter 174 is downstream of the CFIR filter 172 on a *one-way* receiver signal path. Thus, the PFIR filter 174 would be unable to control the CFIR filter 172. The Examiner cited col. 23, lines 1-25 of Hessel which describes a gain control 170. However, the gain control 170 is merely part of the IF gain amplifier 179 as illustrated in FIG. 8 of Hessel and is not part of the PFIR filter 174. Accordingly, as alleged by the Examiner, Hessel fails to teach or suggest at least control logic to digitally tune the first and second filters.

Applicants respectfully submit that the failings in the teachings of Hessel are not made up by the teachings of Coppola, and thus the combination of Hessel and Coppola do not render obvious the subject matter as set forth in claim 1. Coppola relates to an RF notch filter. The Examiner has cited col. 2, line 49 to col. 3, line 44; and col. 4, line 27 to col. 6, line 65 of Coppola in support of the rejection. Applicants would respectfully request that the Examiner cite patent documents with greater specificity. The sum total of the cited material of Coppola by the Examiner amounts to almost the entire Summary section and almost the entire Description section. Applicants respectfully submit that the Examiner has provided very little guidance as to how the cited sections of Coppola teach or suggest "control logic to digitally tune the first and second filters as a function of a first parameter of a first signal output from the first filter and a second parameter of a second signal output from the second filter" as set forth in claim 1. In fact, the Examiner has failed to set forth in his arguments on page 3 of the Office Action any discussion relating to control logic, any discussion relating to digital tuning or any discussion

relating to digitally tuning as a function of a first parameter of a first signal output of the first filter and a second parameter of a second signal output from the second filter. Applicants respectfully submit that the Examiner has not met his burden of presenting a *prima facie* case of obviousness. Applicants cannot identify the control logic that is allegedly described in the text cited by the Examiner. The notch filter paths 14, 20, 24 are one-way notch filter paths. For example, the bandpass filter 15 and the inverter 16 in the first notch filter path 14 are not digitally tuned by any control logic as a function of a first parameter of a first signal output from the bandpass filter 15 and a second parameter of a second signal output from the notch filter 16. Applicants respectfully submit that the combination of Hessel and Coppola does not teach or suggest "control logic to digitally tune the first and second filters as a function of a first parameter of a first signal output from the first filter and a second parameter of a second signal output from the second filter" as set forth in claim 1.

Applicants also respectfully challenge the motivation for combining Coppola with Hessel. The Examiner states that "it would have been obvious to one of ordinary skill in the art at the time of the invention was made to apply the technique of Coppola to the system of Hessel in order to provide a notch frequency filter that operates over a wide frequency range with optimal performance". Applicants respectfully submit that adding a notch frequency filter to any and every circuit will not always produce "optimal performance". Applicants respectfully request that the Examiner explain where Hessel teaches a need for a "notch frequency filter that operates over a wide frequency range". In the context of Hessel, Applicants respectfully challenge the Examiner to explain (1) how adding a notch frequency filter to Hessel will not change the principle of operation of Hessel and (2) how adding a notch frequency filter to Hessel will promote "optimal performance" in Hessel. Furthermore, Applicants respectfully request that the Examiner explain which "performance" is being "optimized" so as to justify the combination of Hessel and Coppola. Applicants respectfully submit that, just because the invention of Coppola provides "optimal performance" over the prior art in Coppola, it does not necessarily follow that the invention of Coppola combined with Hessel will provide "optimal performance" in a modified Hessel.

Accordingly, an obviousness rejection based on Hessel in view of Coppola cannot be maintained with respect to claim 1 and its dependent claims (i.e., claims 2-7).

Furthermore, Applicants respectfully submit that, even if proper (which Applicants dispute), the combination of Hessel and Coppola does not teach or suggest each and every element as set forth in claims 2-7. For example, claims 4-7, either directly or through dependence, recite "a first signal strength indicator to determine the first parameter and a second signal strength indicator to determine the second parameter". None of the citations in Hessel provided by the Examiner nor the modifications in light of Coppola teaches or suggests a signal strength indicator to determine a parameter of the CFIR filter 172I and a signal strength indicator to determine a parameter of the CFIR filter 174Q.

For at least the above reasons, Applicants respectfully request that the rejection under 35 U.S.C. § 103(a) be withdrawn with respect to independent claim 1 and its dependent claims (i.e., claims 2-7).

B. Claims 15-20

Neither Hessel nor Coppola, individually or combined, teaches or suggests each and every element as set forth in claim 15. For example, claim 15 recites "first and second digitally tunable filters; and tuning means for digitally tuning the first and second filters as a function of a first parameter of a first signal output from the first filter and a second parameter of a second signal output from the second filter". Since the Examiner uses many of the same or similar arguments in support of the rejection of claim 15 as were used in support of the rejection of claim 1, Applicants respectfully make the same or similar arguments in traversing the rejection of claim 15 as were made in traversing the rejection of claim 1.

Furthermore, Applicants respectfully submit that, even if proper (which Applicants dispute), the combination of Hessel and Coppola does not teach or suggest each and every element as set forth in claims 16-20. Since the Examiner uses many of the same or similar arguments in support of the rejection of claims 16-20 as were used in support of the rejection of claims 2-7, Applicants respectfully make the same or similar arguments in traversing the rejection of claims 16-20 as were made in traversing the rejection of claim 2-7.

For at least the above reasons, Applicants respectfully request that the rejection under 35 U.S.C. § 103(a) be withdrawn with respect to independent claim 15 and its dependent claims (i.e., claims 16-20).

C. Claims 28-34

Neither Hessel nor Coppola, individually or combined, teaches or suggests each and every element as set forth in claim 28. For example, claim 28 recites "a calibration circuit having first and second digitally tunable filters, and control logic having a tuning output to digitally tune the first and second filters as a function of a first parameter of a first signal output from the first filter and a second parameter of a second signal output from the second filter". Since the Examiner uses many of the same or similar arguments in support of the rejection of claim 28 as were used in support of the rejection of claim 1, Applicants respectfully make the same or similar arguments in traversing the rejection of claim 28 as were made in traversing the rejection of claim 1.

Furthermore, Applicants respectfully submit that, even if proper (which Applicants dispute), the combination of Hessel and Coppola does not teach or suggest each and every element as set forth in claims 29-34. Since the Examiner uses many of the same or similar arguments in support of the rejection of claims 29-34 as were used in support of the rejection of claims 2-7, Applicants respectfully make the same or similar arguments in traversing the rejection of claims 29-34 as were made in traversing the rejection of claim 2-7.

For at least the above reasons, Applicants respectfully request that the rejection under 35 U.S.C. § 103(a) be withdrawn with respect to independent claim 28 and its dependent claims (i.e., claims 29-34).

D. Claims 47-49

Neither Hessel nor Coppola, individually or combined, teaches or suggests each and every element as set forth in claim 47. For example, claim 47 recites "first and second digitally tunable filters each having a tuning input" and "control logic having an input coupled to the output of the comparator, and a first tuning output coupled to the tuning input of the first filter and a second tuning output coupled to the tuning input of the second filter". Since the Examiner uses many of the same or similar arguments in support of the rejection of claim 47 as were used in support of the rejection of claim 1, Applicants respectfully make the same or similar arguments in traversing the rejection of claim 47 as were made in traversing the rejection of claim 1.

Furthermore, Applicants respectfully submit that, even if proper (which Applicants dispute), the combination of Hessel and Coppola does not teach or suggest each and every

element as set forth in claims 48 and 49. Since the Examiner uses many of the same or similar arguments in support of the rejection of claims 48 and 49 as were used in support of the rejection of claims 2-7, Applicants respectfully make the same or similar arguments in traversing the rejection of claims 48 and 49 as were made in traversing the rejection of claim 2-7.

For at least the above reasons, Applicants respectfully request that the rejection under 35 U.S.C. § 103(a) be withdrawn with respect to independent claim 47 and its dependent claims (i.e., claims 48 and 49).

E. Claims 54-59 and 61

Neither Hessel nor Coppola, individually or combined, teaches or suggests each and every element as set forth in claim 54. For example, claim 54 recites "providing a reference signal to first and second digitally tunable filters; and digitally tuning the first and second filters as a function of a first parameter of the filtered reference signal output from the first filter and a second parameter of the filtered reference signal output from the second filter". Since the Examiner uses many of the same or similar arguments in support of the rejection of claim 54 as were used in support of the rejection of claim 1, Applicants respectfully make the same or similar arguments in traversing the rejection of claim 54 as were made in traversing the rejection of claim 1.

Furthermore, Applicants respectfully submit that, even if proper (which Applicants dispute), the combination of Hessel and Coppola does not teach or suggest each and every element as set forth in claims 55-59 and 61. Since the Examiner uses many of the same or similar arguments in support of the rejection of claims 55-59 and 61 as were used in support of the rejection of claims 2-7, Applicants respectfully make the same or similar arguments in traversing the rejection of claims 55-59 and 61 as were made in traversing the rejection of claim 2-7.

For at least the above reasons, Applicants respectfully request that the rejection under 35 U.S.C. § 103(a) be withdrawn with respect to independent claim 54 and its dependent claims (i.e., claims 55-59 and 61).

III. REJECTION UNDER 35 U.S.C. § 103(a) WITH RESPECT TO CLAIMS 8-14, 21-27, 35-46, 50-53 AND 60

Claims 8-14, 21-27, 35-46, 50-53 and 60 stand rejected under 35 U.S.C. § 103(a) as being obvious over Hessel in view of Coppola and further in view of U.S. Patent No. 5,283,484 ("Brehmer"). Applicants respectfully traverse the rejection.

Claims 8-14 depend from claim 1; claims 21-27 depend from claim 15; claims 35-46 depend from claim 28; claims 50-53 depend from claim 47; and claim 60 depends from claim 54. Applicants respectfully submit that the failings in the teachings of Hessel or Coppola, individually or combined, as discussed above with respect to independent claims 1, 15, 28, 47 and 54 are not made up by the teachings of Brehmer (i.e., some components of a voltage limiter). For at least the above reasons, the obviousness rejection of claims 8-14, 21-27, 35-46, 50-53 and 60 cannot be maintained.

Furthermore, Applicants respectfully submit that the combination of Hessel, Coppola and Brehmer does not teach or suggest each and every element as set forth in claims 8-14, 21-27, 35-46, 50-53 and 60. For example, claims 8-14, 21-27, 35-46, 50-53 and 60 recite, either directly or through dependence, a tunable capacitor. However, none of the references teaches a tunable capacitor.

For at least the above reasons, Applicants respectfully request that the rejection under 35 U.S.C. § 103(a) be withdrawn with respect to claims 8-14, 21-27, 35-46, 50-53 and 60.

CONSIDERING EACH AND EVERY ELEMENT OF CLAIMS

Lastly, Applicants respectfully submit that, by grouping claim 8-14, for example, as merely comprising "a first resistor and a first tunable capacitor; and a second resistor and a second tunable capacitor, the control logic digitally tuning the first and second capacitors", the Examiner has not adequately considered **each and every element** as set forth in claims 8-14. Applicants respectfully request that the Examiner deal with claims 8-14 *individually*. For example, claim 9 recites "wherein the control logic digitally tunes each of the first and second capacitors by providing a first digital word to the first capacitor and a second digital word to the second capacitor". Clearly, claim 9 recites more than just a first capacitor and a second capacitor. In another example, claim 10 recites "wherein the control logic tunes initially tunes the first capacitor to a first value and tunes the second capacitor to a second value different from the first value, and wherein the control logic is disabled when the first digital word equals the

second digital word". Clearly, claim 10 recites more than just a first capacitor and a second capacitor. In yet another example, claim 11 recites "wherein the first value comprises a maximum value of the first capacitor and the second value comprises a minimum value of the second capacitor". Clearly, claim 11 recites more than just a first capacitor and a second capacitor. In yet still another example, claim 12 recites "wherein the first capacitor comprises a first tunable capacitor array and the second capacitor comprises a second tunable capacitor array". Clearly, claim 12 recites more than just a first capacitor and a second capacitor. Claim 13 recites "wherein the first and second tunable capacitor arrays each comprises a plurality of capacitors coupled in parallel, and a plurality of switches each being coupled in series to a different one of their respective capacitors". Clearly, claim 13 recites more than just a plurality of capacitors. Claim 14 recites that "the control logic tunes the first filter with a plurality of first digital bits and tunes the second filter with a plurality of second digital bits, the first digital bits each controlling a different one of the switches in the first capacitor array and the second digital bits each controlling a different one of the switches in the second capacitor array". The additional elements and details are not discussed by the Examiner and thus the Examiner has failed to present even a *prima facie* case of obviousness.

Applicants respectfully submit that the other claims (i.e., the claims other than claims 8-14) which were rejected "under a similar rationale" be reconsidered individually.

For at least the above reasons, Applicants respectfully request that the rejection under 35 U.S.C. § 103(a) be withdrawn with respect to claims 8-14, 21-27, 35-46, 50-53 and 60.

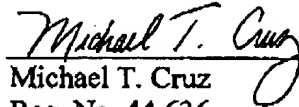
IV. CONCLUSION

In view of at least the foregoing, it is respectfully submitted that the pending claims 1-68 are in condition for allowance. Should anything remain in order to place the present application in condition for allowance, the Examiner is kindly invited to contact the undersigned at the below-listed telephone number.

Please charge any required fees not paid herewith or credit any overpayment to the Deposit Account of McAndrews, Held & Malloy, Ltd., Account No. 13-0017.

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Respectfully submitted,



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